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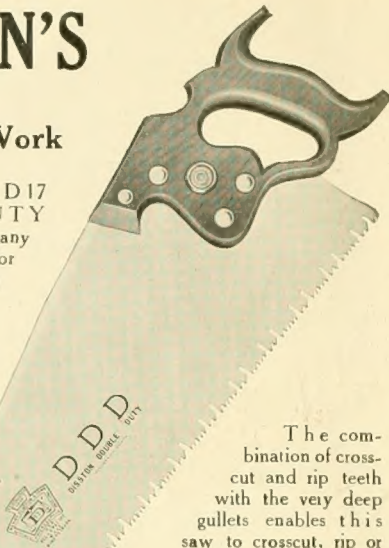
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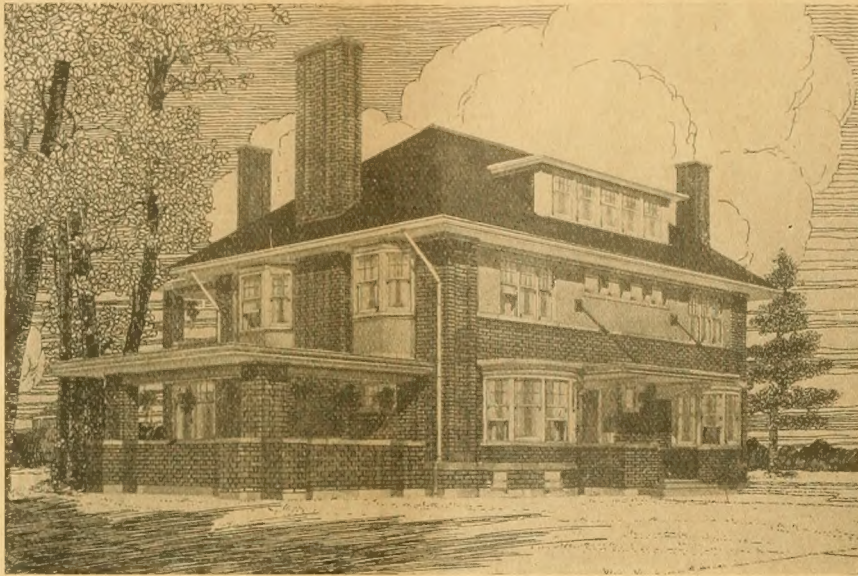
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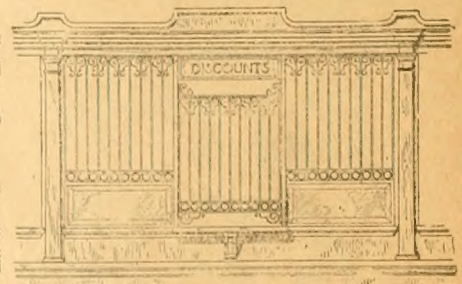
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G. C. KEITH, M.Sc.,
EDITOR

VOLUME 8

TORONTO, FEBRUARY, 1918

NUMBER 2

1918 Building Prospects Good

The prospects for a good 1918 building season are bright at the present moment. Building permits taken out in January are encouraging. Reports are that Winnipeg is to have four new schools, Ottawa is to have a new million dollar building and a large number of factory buildings are being planned.

Residence construction is urgently needed, and in Toronto alone a large number are planned. One builder is counting on erecting twenty-five, another is planning for fifteen, another ten, another seven, and so on. We could give many examples of work planned for the coming season in one city alone. There is a scarcity of houses in many cities and towns, and many new ones will be erected.

In several centres manufacturers are interesting themselves in building propositions to provide accommodation for the factory help which must be properly housed to become permanent employees.

It is true that some products such as lumber and hardware, have advanced in price, but many other lines, such as brick, lime and cement have not increased in price to any considerable extent. Labor scarcity is the chief problem, therefore, and it will be necessary to employ many labor saving machines, such as woodworkers, derricks, etc., to offset this scarcity. This, it has been found by many builders during the past year to be good, sound, economical business, and was attended with good results. Electricity or the gasoline engine to operate building machinery will take the place of quite a few men, and in addition, do away with a whole lot of hand labor.

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The Perfect Window

For the present, we suppose, all the inventive genius of the nation must be devoted to engines of warfare. When peace once more settles over the world, the editor of Munsey, in the nature of a question, states that some human benefactor may invent a perfect dwelling-house window.

The steel-frame, steel-sash window of a fireproof hotel may be as reliable as a seventeen-year-old horse. It may ride up and down with ease and precision in the dampest weather. It may never pinch fingers and tempers in summer or let in rheumatic drafts in winter. We hope that such is the case, for the sake of the fortunate dwellers behind.

The greater part of mankind, however, is housed in dwellings containing wooden window-frames and sashes, a combination uncertain and unsatisfactory.

The season of thunder-showers discloses baldly the defects and cussednesses of the ordinary window. Do you know of a more uncomfortable and depressing situation than to lie abed in a cross current of air while flashes of lightning play skittishly in and out of open windows, which having extracted a toll of broken finger-nails and perspiring muscles, remain triumphantly immovable?

Three centuries ago in France there was a tax on windows. In consequence, the peasants and bourgeoisie built their houses with as few openings as possible. There is no such tax now, and our houses have almost more window-space than wall-space. This arrangement conduces to good health and cheerfulness. But neither physical well-being nor normal tranquility is promoted by the modern wooden window frame; and unless some genius takes in hand some day the difficult problem of its mechanism, for the amendment of its chronic faults of lateral or perpendicular operation, the time may come when civilization itself will sigh for the medieval blank wall.

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Standardizing Roofing Stock

In the report of the Felt Division submitted to the annual meeting of the Pulp and Paper Association held in Montreal, Mr. G. M. Greaves referred to the efforts made to obtain a standard classification of roofing stock. He stated that from the favorable answers received it looked as if the leading dealers and packers will adopt this standard classification. He added that considerable quantities of Canadian roofing felt have been exported, also large quantities of prepared roofing manufactured from Canadian roofing felt have been shipped by the various Canadian prepared roofing manufacturers to our allies in Europe.

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House No. 1 at Westmount.

Brick House at Westmount, Quebec

BUILDERS:

Anglins, Limited, Montreal

THE accompanying illustrations show plan and elevation of a house erected by Anglins Limited, Montreal, on Westmount Boulevard, Westmount, P.Q. It is built of buff pressed brick, with a four-inch terra cotta lining.

The roof is covered with green slate.

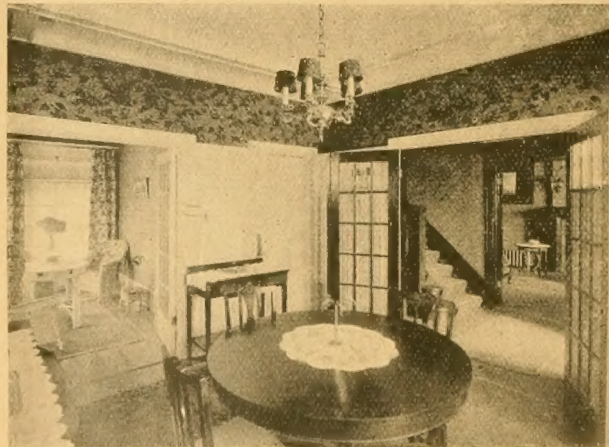
The interior is finished with birch doors, stained mahogany. Dining room is panelled in white and finished in enamel.

All bedrooms and conservatory are finished in white enamel.

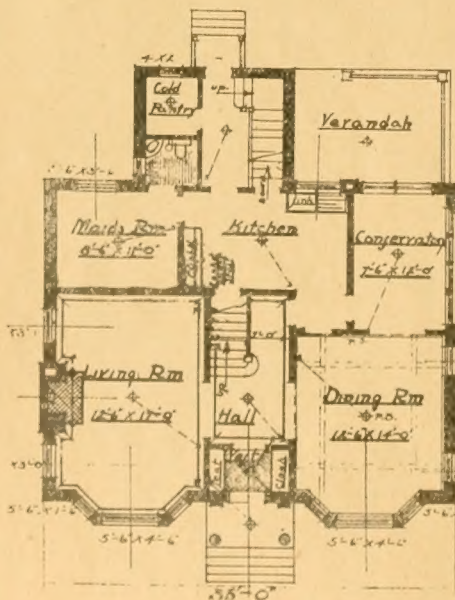
Flooring is quartered oak, with an inlaid border in most of the rooms.

The house is very compact, as shown by the plan, there being practically no waste space. The attic was left unfinished.

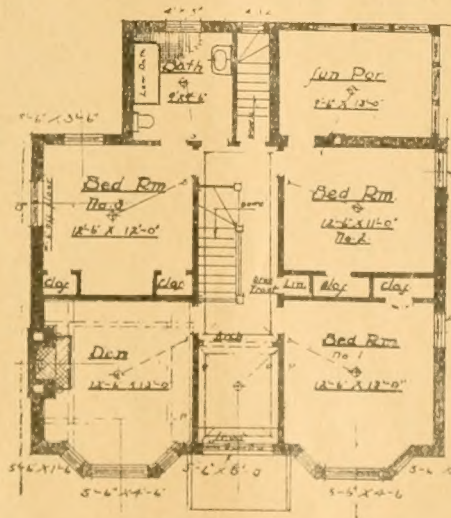
The basement room includes a billiard



Dining room in house No. 1 at Westmount.



Ground floor plan of Westmount house.



Bedroom floor plan of same house.

room, which is water-proofed and finished as a play room.

A maids' room with toilet, and a conservatory are included on the first floor, the upstairs plan having an unusual bathroom and back stair arrangement.

WHEN MAKING FRAMES THINK *of the* GLASS

Some suggestions for making great economies in glass by making frames to suit standard glass sizes.

Staff Article

THERE is, perhaps, no branch of the carpenter's work which is done in such a slap stick way as making window frames.

While some men do this work in a systematic way, more do it with no consideration to the stock sizes of glass. In these days of high prices and close competition, efficiency in this, as well as other things, must be attained.

As the frame regulates the size of glass to be used, this is logically the place to consider it.

Some carpenters will order their stone sills (if such are to be used), and from this get the width of their frames. Others will determine the width and height of their frames, in a more or less, hit or miss fashion, leaving the sizes of glass to its fate.

Obviously, both these methods is putting the cart before the horse.

The correct place then, to start laying out a window frame, is with the glass (after an approximate size of the frame is determined).

In Fig. 1 will be seen a comprehensive table of stock glass. These sizes apply to "Star" and "Double Diamond." This table should be cut out and pasted over your bench, for reference. In one column will be found sizes in inches. This is the proper method to employ when ordering glass. In the column to the right will be found the number of panes in a box. This will aid in ordering more intelligently.

Supposing a casement window is wanted 2 ft. 3 in. by 3 ft., one light. Taking the width, first lay out on a rod which should be kept for this purpose, measure 2 ft. 3 in., deduct from this the

the carpenter is not held rigidly to 1 or 2 in., in a case of this kind. Next, consider the height, 3 ft. Lay out as before, but to 3 ft. This time we have to de-

Size, Inches.	Panes in Box.	Size, Inches.	Panes in Box.	Size, Inches.	Panes in Box.	Size, Inches.	Panes in Box.
6x8	150	12x19	32	16x20	23	24x44	7
7x9	115	12x20	30	16x22	20	24x50	6
8x10	90	12x21	29	16x24	19	24x56	5
8x11	82	12x22	27	16x30	15	26x36	8
8x12	75	12x23	26	16x36	12	26x40	7
9x10	80	12x24	25	16x40	11	26x48	6
9x11	72	13x14	40	18x20	20	26x54	5
9x12	67	13x15	37	18x22	18	28x34	8
9x13	62	13x16	35	18x24	17	28x40	6
9x14	57	13x17	33	18x26	15	28x46	6
9x15	53	13x18	31	18x34	12	28x50	5
9x16	50	13x19	29	18x36	11	30x40	6
10x10	72	13x20	28	18x40	10	30x44	4
10x12	60	13x21	26	18x44	9	30x48	5
10x13	55	13x22	25	20x22	16	30x54	5
10x14	52	13x24	23	20x24	15	32x42	5
10x15	48	14x15	34	20x25	14	32x44	5
10x16	45	14x16	32	20x26	14	32x46	5
10x17	42	14x18	29	20x28	13	32x48	5
10x18	40	14x19	27	20x30	12	32x50	4
11x11	59	14x20	26	20x34	11	32x54	4
11x12	55	14x22	23	20x36	10	32x56	4
11x13	50	14x24	22	20x40	9	32x60	4
11x14	47	14x28	18	20x44	8	34x40	5
11x15	44	14x32	16	20x50	7	34x44	5
11x16	41	14x36	14	22x24	14	34x46	5
11x17	39	14x40	13	22x26	13	34x50	4
11x18	36	15x16	30	22x28	12	34x52	4
12x12	50	15x18	27	22x36	9	34x56	4
12x13	46	15x20	24	22x40	8	36x44	5
12x14	43	15x22	22	22x50	7	36x50	4
12x15	40	15x24	20	24x28	11	36x56	4
12x16	38	15x30	16	24x30	10	36x60	3
12x17	35	15x32	15	24x32	9	36x64	3
12x18	33	16x18	25	24x36	8	40x60	3

Fig. 1.—Table of stock glass.

duct the width of the top rail, 2 in., and the width of the bottom rail, 3 in. = 5 in. This leaves for glass, 31 in. By referring to the table, Fig. 1, we find the

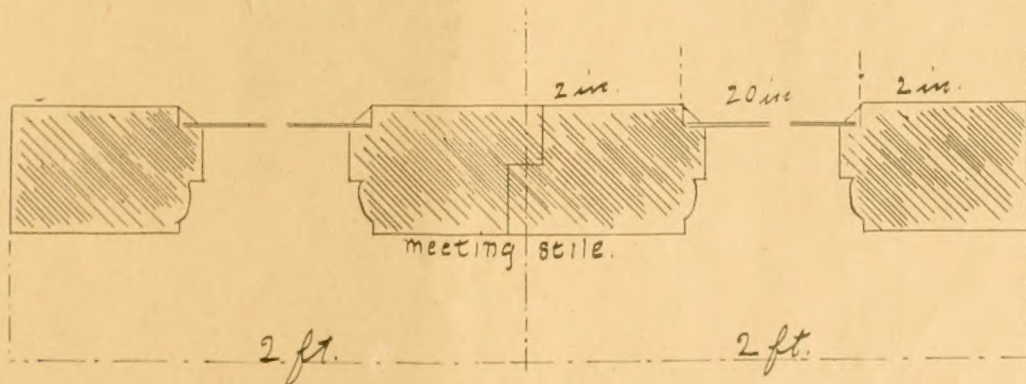


Fig. 2.—Casement sash.

width of the two sash stiles, 2 in. x 2 = 4 in. We see nearest to this is 30 in., so we must cut 1 in. from the this leaves 23 in. for glass. Now, referring to the table, Fig. 1, we see the nearest size to this is 24 in., so the frame must be made 1 in. wider, thus 2 ft. 4 in. If on the other hand we wish to use 22 in. glass, the frame must be cut down to 2 ft. 2 in. In most cases

height of the frame. This makes it 2 ft. 11 in. These alterations make little difference to the frame, but will save a great deal in glass.

Consider next a pair of casement sash, as shown in Fig. 2. You will observe, there is a meeting stile to

consider. Take the width as 4 ft. The centre then will be 2 ft. It is only necessary to consider the one side at present. The centre or meeting stiles in this section, is 4 in., the centre of this then is 2 in. Working from the centre, lay out as before, to 2 ft. Deduct 2 in. for meeting stile and 2 in. for outside stile. The glass then will be 20 in. Referring to the table, we find 20 in. is a stock size, so no alteration need be made. The other sash of the pair will be, of course, the same size. The height will be found in the same way as shown in the first example.

In considering a frame for pulley sash, the method of finding the width will be the same as in the first case. The length is found in a somewhat different way. Pulley sash are generally known as half and half, or two-fifths and three-fifths, Fig. 3. Take first the

particularly the latter, which we may take it for granted will never be again as low as it was three or four years ago. But people cannot forever defer the erection of dwellings and other classes of buildings on account of the cost obtaining.

In the manufacturing towns, and especially those of the medium and smaller description, there is a decided scarcity of homes, and particularly those for work people. In several places it has become so serious that manufacturers are urging local municipal councils to come to their assistance by erecting workmen's dwellings in order that they can secure labor and hold it. For where workmen cannot get homes they naturally will not remain.

In the West there has been a decided improvement in immigration, the number of persons who crossed

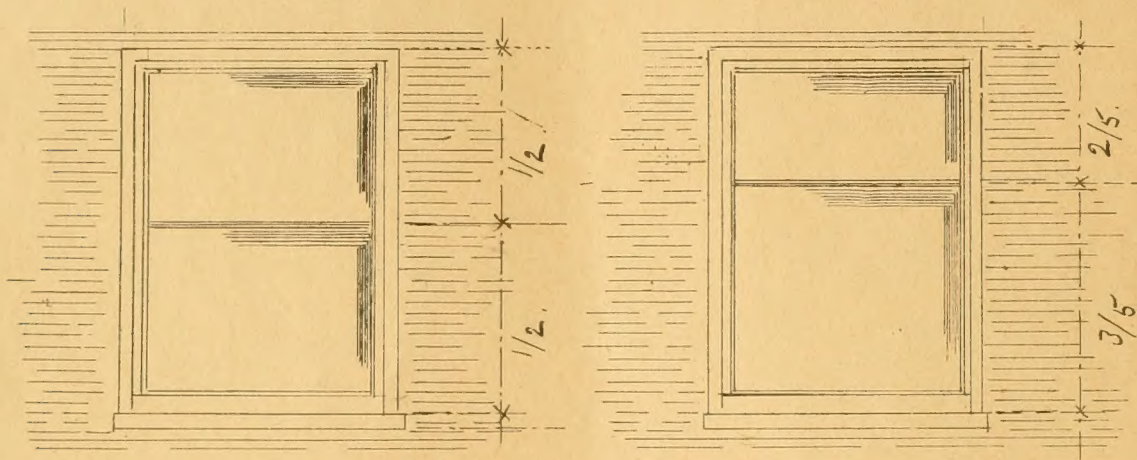


Fig. 3.—Pulley sash frame.

half and half style, for a frame, say, 6 ft. Lay out on a rod to 6 ft. Lay off 3 in. for bottom rail of bottom sash, 2 in. for the top rail of the top sash. The meeting rails are $1\frac{1}{4}$ in., but as they are ploughed $\frac{1}{8}$ in. for the glass, for both sash, the deduction here is 1 in. Adding these 3 in. + 2 in. + 1 in. = 6 in., this leaves 66 in. for glass. This being divided between two sash, each pane will be 33 in. Referring to the table, we see the nearest size is 32 in. So the frame must be cut down 1 in. for each sash or 2 in. on the frame, thus making it instead of 6 ft., 5 ft. 10 in.

The two-fifths and three-fifths style of window is laid out the same as the half and half style, excepting that the bottom sash is three-fifths the size of the opening, and the top sash, two-fifths.

These that we have considered are the ones most often met with, but by the foregoing method any style of frame can be laid out with economy.

Constant application of this method will soon make the carpenter an adept at laying out work for frames.

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Building Trade Outlook

While there may be little prospect of an immediate return to the building activity which obtained four years ago, yet the conditions are becoming such that an improvement cannot long be deferred. I have not reference to speculative building, which still seems a matter for the distant future. I have reference simply to necessary building.

It is quite probable that material and labor are likely to rule high in price for some years, and par-

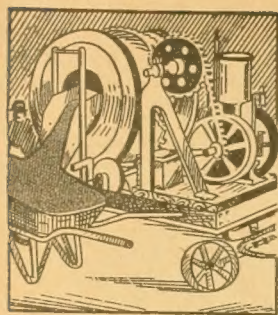
the border last year from the United States to settle in the Dominion, plus those who entered simply for the purpose of assisting in the harvesting, being 33,134 compared with 15,960 in 1916. They also had between them, according to the immigration authorities at Ottawa, cash to the amount of about five millions of dollars. All this means increased work for the building trade of the country.

But a further matter to be taken into consideration with the situation, is the fact that the country was never as prosperous as it is to-day. And furthermore still, there never was as much money in the country as there is at present. Canadians generally may not be as economical as they might be in view of the financial needs which the war has created. But notwithstanding the total deposits of the Canadian people in the chartered banks now amount to \$1,723,172,279, which is an increase of close to \$270,000,000 in the course of twelve months.

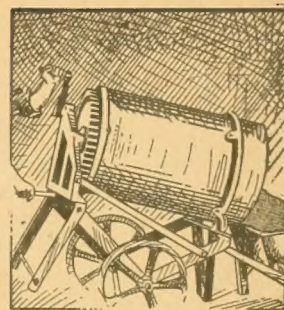
In practically every branch of the industrial life of the country, production is being carried on to an extent unprecedented in the history of the Dominion. The productive value of the farms of the country for 1917, taking field crops, live stock, dairy products, wool, eggs, fruits and vegetables, must have at least been \$1,600,000,000. Including manufacturing, mining, fishing, and forest products, the total productive value of the Dominion must have been fully four billions of dollars, or about double what it was in pre-war times.

In view of conditions like this it is idle to say that the people of Canada cannot afford to build. The

(Continued on page 10.)



Concrete Department



Floor Surfaces for Concrete

Floors get the most use and wear. Therefore, it is important that particular care be given to the selection of the proper floor surface. Good floors give lasting satisfaction, while poor floors provide a constant source of annoyance and afford inefficient working conditions.

The selection of the floor surface is dependent on the nature of the structure and also the kind of use to which the floor will be subjected. The principal items to be considered are the wearing properties, appearance and cost. The secondary items (very important, however, in structures used for certain classes of manufacturing) are cleanliness, weight, strength and fire resistance. No one type of floor surface is suitable for all conditions. It is necessary to make a special study of each individual case.

There are many different types used, such as

- Granolithic
- Hardwood
- Terrazo
- Marble
- Linoleum
- Cork Tile
- Composition
- Asphalt
- Asphalt Mastie
- Tile (Mosaic)
- Tile (Clay)
- Wood Block

Of these the most common are granolithic and hardwood, and it is with these types and their construction that we shall deal principally in this article. The other classes will be treated briefly.

Granolithic (Cement Finish)

The granolithic floor is, no doubt, more in keeping with the reinforced concrete building than the wooden floor. It has good wearing properties, presents a good appearance; it is a strong, sanitary form of construction, reasonable in cost. The finish is a part of the floor and adds to the strength of the slab. The total thickness of the floor is less than for wood, which means a less total height of building for the same clear story heights than where wood floors are used. This type gives more wear for factories and machine shops than a wood surface floor.

Among the objections which have been voiced against the granolithic finish is the complaint that these floors sometimes dust. It is true that such floors have sometimes dusted, but this is due to improper methods of construction and can be avoided by the use of proper materials and proper workmanship.

From the structural standpoint there are three classes of granolithic floors. (1) The concrete surface may be applied at the same time as the base, thus pro-

ducing a monolithic floor, or (2) the finish may be applied later, or (3) the cement finish may be applied on a cinder concrete fill laid on top of the concrete base. The mortars to be used and the character of the aggregate are the same for all three.

It is very important to use only good material. Depending upon the exact nature of the construction, either one of two mixtures may be used. The first mixture is a mortar in the proportions of 1 bag Portland cement and 2 cubic feet fine aggregate ranging in size from 1/16 to 1/2 inch. The second mixture is a mortar in the proportions of 1 bag Portland cement and 1 cubic foot of fine aggregate and 1 cubic foot of aggregate for wearing course ranging from 1/8 to 1/2 inch, or even larger. A thicker coat must be used for the second mixture than for the first mixture.

In making the monolithic type, the base of the concrete floor, after being poured, is struck off to a level, so as to allow for a thickness of 3/4 to 1 inch for the mortar finish. This is placed immediately and thus forms an integral part of the concrete floor. It has the advantage of being a one-piece form of construction and thus obviates the difficulty or danger of separation of the mortar finish from the base. The mortar finish is screened to grade with a straight edge and smoothed with a wooden float and later finished with a steel trowel. This may be marked off into blocks or sections if desired, but it is not advisable.

In applying the finish after the slab concrete has set, it is very important to prepare the concrete base so that the mortar finish will adhere and bond firmly with the base. It is necessary first to roughen the concrete base thoroughly. All loose material and all foreign material should be cleaned from the surface. Next the concrete is thoroughly drenched, so that it will not absorb any moisture from the fresh mortar. It is then given a coat of grout, of cement and water, applied with a whitewash brush, and is then ready for the mortar finish.

The third type of surface finish in concrete is that of laying cinder concrete on the concrete base before applying the mortar finish. In this method a cinder concrete is laid 2 inches thick on the reinforced concrete slab. It is screeded and then the surface finish, to a thickness of 1 inch, is applied immediately. For the purpose of obtaining a good finish the cinder concrete base may be allowed to set before the finish is applied, as it is often difficult on account of the porosity of the cinder concrete to obtain a good cement finish when the surface is placed before the cinder concrete has hardened.

It is highly important that the surface finish should be properly cured. Sprinkle the floor and keep it wet for at least five days. The floor may be covered with tar paper, on which can be placed a thoroughly

wetted layer of sawdust. Trucking or heavy wear of any kind should not be allowed for at least two weeks.

In constructing a wooden floor there are two common types. The first is made with sleepers laid on the reinforced concrete slabs, and a filling between these of cinder concrete. The flooring is then nailed to the sleepers. The other method is to apply a sand and tar mixture to the floor slab, and then lay wooden planks and nail the maple flooring to the planks.

In the former type of construction, 2x4-inch sleepers, laid 16 inches centre to centre, are recommended. The sleepers are laid directly on top of the reinforced concrete slab and it is a good plan to drive 40d nails part way in the sides of the sleepers at intervals of about 3 feet alternately on each side. These nails are for the purpose of keying the sleepers with the concrete to prevent any movement. The sleepers are usually beveled at the sides, so that they may be better held to the concrete in case of shrinkage of the wood. There is a wide variation in the proportions of cinder concrete to be used, the average being 1 part Portland cement, 3 parts sand and 6 parts cinders. Sometimes planks are nailed upon the sleepers before the flooring is applied. When this is done the planks are nailed at right angles. The maple flooring should then be nailed at right angles, or diagonally on the planks. For ordinary floor construction, however, the maple flooring is nailed directly to the sleepers the thickness for maple flooring ranges from 7/8 to 1 1/4 inches. Sometimes the cinders are laid dry instead of being made into a concrete. The advantage claimed is that in such a construction there is less danger of dry rot.

In the other form of wooden floor construction the use of sleepers is avoided and a sand and tar base is applied directly to the reinforced concrete slab. The sand and coal tar are spread about 1/4 inch thick and leveled off with a straight edge while still warm and soft. On top of this layer are placed 2-inch planks fitted closely together. The maple flooring is laid at right angles on the planks. Sometimes rough pine boards 7/8 inch thick are laid on the planks before the maple flooring is laid. This depends upon the type of the building and the load and amount of wear to which the floors will be subjected.

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Repairing Cracks in Concrete Roofs

A correspondent writing to one of our London contemporaries describes the manner in which cracks in a reinforced concrete roof were repaired. As the subject is one of wide interest, we reprint the article herewith:

"A concrete roof, reinforced with 4-in. I-section iron joists, was made in a certain building. The span of the roof was 12 ft. and the joists were placed every 3 ft. apart. As sometimes happens in such roofs, the concrete had settled down on the lower flanges of the joists, thus forming a cavity along the entire length of the joists and on each side of them.

"The formation of these cavities weakened the overlying concrete, causing it to sag on both sides of the joists, with the result that a crack running the length of the joists appeared centrally over each joist. In rainy weather these cracks and cavities were able to store up water which gradually found its way into the building.

"To remedy these defects a 'trough,' 8 1/2 in. by 1 1/2 in., was cut out over each joist, so that the cracks then ran along the floors of the troughs. The sides of the troughs were slightly undercut. Next, the cracks themselves were cut so as to be 1 in. wide and to penetrate as far as the upper flanges of the joists. In order to reach the cavities a series of 'pour holes' were made from the floor of the trough through the concrete to the cavities. The pour holes were made on both sides of the joists, but never opposite each other, and were a few feet apart.

"The whole surface was then carefully dusted and wetted, and a grout of 1 part cement, 1 part sand and 2 1/2 per cent. Pudlo was poured through each pour hole. Then a mixture of 2 parts of fine annealed slag, 1/2 part sand, 1 part cement and 3 1/2 per cent. Pudlo was used to complete the filling up of the cracks and cavities up to the level of the floor of the trench or trough. Having allowed this to consolidate, the trough was filled up with the same mixture, being reinforced with strips of expanded metal, No. 6.

"Another portion of the roof which has sagged very much in places was well hacked, treated in the above-mentioned manner, then given a Pudloed coat, 2 1/2 in. thick, over the grouting."

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Building Trade Outlook

(Continued from page 8)

fact of the matter is that they can better afford to do so than they could at any time in their history. And it is largely a psychological influence that is preventing them doing so.

Is it not possible that a good many builders throughout the country could do a great deal towards upsetting this psychological delusion by individual and collective effort? In other words get out and push for business just as the manufacturer, the wholesaler and the retailer does. Business men do not cease soliciting orders because prices are high. The builder should take a leaf out of their book of experience. If he did he would undoubtedly profit thereby.

The writer knows of two or three builders, who having vacant lots on their hands which had, as the saying is, been eating their heads off, erected moderate-priced dwellings upon them and turned their venture to good account. It is possible that many others who have not yet done so, could with advantage to themselves, follow in their footsteps.—William Lewis Edmonds.

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Personal Mention

Mr. Alph Shute, president of the Algoma Mercantile Society, stated in an interview that this spring probably fifty houses would be built in Sault Ste. Marie on the co-operative plan.

Mr. M. J. Beatty has been elected to the directorate of the Manufacturers Life Insurance Company in succession to the late G. P. Scholfield. Mr. Beatty is a member of the well-known firm of Beatty Bros., Ltd., of Fergus, Ont., and is the company's largest Canadian policy-holder. The thousands of policyholders of the company will no doubt be pleased that a man of Mr. Beatty's executive ability has been added to their already strong representation on the board.

the weather above the roof. This helps some, but not enough. Building regulations really should specify that at least the entire inside of the chimney exposed to heat should be built with cement mortar. This will add a little more to the cost of construction, but it is well worth it.

Specifications of Good Mortar for Tile Walls

Much has been said and many tests have been made on the strength of the tile wall. Not so much attention has been paid to the mortar, though without the right mortar the strength of the tile avails nothing. An insufficient bedding of mortar between the vertical webs of the tile or a poor mortar which does not have the supporting strength will disturb all calculations as to wall strength, and open the way for dissatisfaction with both the contractor and material.

This was at once appreciated by some of the engineers who first studied the use of tile in bearing walls.



McIntyre residence, Toronto. This house is Denison interlocking tile, with stock exterior walls and with brick and stone trimmings.

The following quotation is taken from a report on this subject by a committee of engineers investigating to formulate a city building code.

The committee decided that there was no need to make tests to determine the strength of hollow tiles as such tests have been made, but feels that consideration should be given to the manner in which such tiles are laid and to the mortar in which they are laid.

Since the loads are transmitted to the foundation through the vertical webs of one tile and by means of the mortar to the vertical webs of the tile below, it is important that the mortar used should be of such quality that between the vertical webs there would not be undue deformation of the mortar. It is evident that the pressure per unit of area on the mortar between the webs would be greater than over the rest of the bed at any horizontal joint. The poorer the mortar, the greater the bed area of mortar required to transmit a given load and the greater the eccentricity of loading and hence the greater the bending in the horizontal wall of the tile. It is the opinion of your committee that with a poor mortar this bending may be enough to cause ruptures of the tile and hence failure of the wall.

No vertical web will be considered effective unless laid so as to be in vertical alignment with a vertical web of the adjacent tiles below. Tiles to be laid with broken joints and thoroughly bonded and bedded with the kind of mortar specified for this class of construction. The allowable thickness of hollow tile walls to be the same as for common brick. Where joints or

beams are seated in hollow tile walls, the bearing shall extend over at least two of the vertical webs.

Hollow tiles shall be laid in mortar composed of one (1) part Portland cement to four (4) parts sand. To this mortar may be added not to exceed ten (10) per cent. by volume of lime paste.

The specifications recommended are not such as to work any hardship, and some such standard should be followed in laying tile walls. In the opinion of many builders a 3 to 1 mixture is well worth the slight extra cost.

Training the Returned Soldier

Several thousand men have returned to Canada, who are unfit to take up their old lines of work. The Military Hospitals Commission has taken up some of the work, but it is a big task which requires the co-operation of manufacturers generally.

Returned men are being taken care of in the districts where they enlisted. Recently, the organization of the work of training the men while convalescent, and the providing for industrial re-education of those who want it, has been taken charge of by Mr. W. E. Segsworth, a Toronto mining engineer who is now devoting his well-known abilities entirely to this work. With the co-operation of such men as Mr. F. H. Sexton, in the Maritime Provinces, and Mr. H. E. T. Haultain, in Ontario, the Administrator of Vocational Training, has begun his work in a manner which will meet with the approval of the mining profession. Mr. Segsworth who has been chairman of the executive of the Joint Committee of Technical Organizations, is persistency personified. He followed up the work for the committee, and his good work has been recognized and he has been given a larger field of labor. Returned men can rest assured that through him they will secure a square deal.

Ontario Workmen's Compensation Board Prescribe First Aid Kits

The Workmen's Compensation Board of Ontario, under a recent order-in-council has made the regulation that every employer in Ontario, having more than fifteen workmen, must provide and maintain first aid kits. Such kits must be satisfactory to the Board. The following notice, printed in the language of the workmen, must be posted in a prominent location:

NOTICE

It Is Dangerous to Neglect Injuries

Without proper care, blood-poisoning or infection with serious consequences may result from slight injuries such as cuts, scratches, scalds, slivers, burns, etc.

Workmen are urged to see that proper attention is given to all such injuries, and to report immediately to the office of the First Aid Officer.

Manager.

Posted by authority of the Workmen's Compensation Board.



Carpentry and Woodworking



Passing of the Carpet

Carpet is now giving way to oak floors, and a large percentage of modern houses have them. In fact 3/4-in. oak flooring offers very profitable work for any carpenter or contractor as a regular business, or during slack winter periods, for laying over old pine floors in old houses, or over cheap sub-floors in new houses.

All that is necessary is some cavassing at the start. After a few jobs are completed, the neighbors will keep you busy.

Basing estimates on 1917 figures on both carpets and oak flooring for comparison, carpet of a fair quality costs about \$3.00 per carpet yard, which contains 63/4 square feet, while 3/8-inch clear, quartered, white oak flooring can be bought, laid, scraped and finished complete for \$1.50 per 63/4 square feet; and 3/8-inch clear, plain, white oak flooring, for \$1.25 per 63/4 square feet.

How to Estimate the Number of Feet Required for a Floor

First obtain the number of square feet of floor space to be covered, and then add the following percentages to it:

	13 16 in. thick	3 8 in. thick
1 1/2 in. face flooring	50 per cent.	33 1/3 per cent.
2 in. face flooring	47 1/2 "	25 "
2 1/2 in. face flooring	33 1/3 "	"
2 1/2 in. face flooring	30 "	"
3 in. face flooring	25 "	"

It is advisable to use a damp proof paper between the oak flooring and the sub-floor. Where sound proof results are desired, a deadening felt is recommended. The following are approximate prices of deadening felt:

Building paper	10 cts. per sq. ft.
Acoustic deadening	15 cts. per sq. ft.

The following grades are recommended for various applications:

Class A—For private residences, hotels, apartments, clubs, offices and club houses.

Class B—For medium priced residences, hotels and apartments, schools, fire buildings and stores.

Class C—For cheap dwellings, tenement houses, factories and manufacturers' buildings.

Class D—For cheap tenements, stores, tenement houses, manufacturers' buildings.

Laying Oak Floors

Laying oak flooring is not very difficult. Any first class carpenter can make a good job. Some judgment and care is very necessary in order to insure the best results.

A sub-floor should be used under both the 13 16 in. and 3 8 in. thicknesses. The sub-floor should be

reasonably dry and laid diagonally. Boards of about 6 in. wide are preferred. These boards should not be put down too tight and should be thoroughly dried off and cleaned before the oak flooring is laid.

Oak flooring should be laid at an angle to the sub-floor. After laying and nailing three or four pieces, use a short piece of hardwood 4x4 placed against the tongue, and drive it up.

The nailing of oak flooring is very important. All tongued and grooved oak flooring should be blind nailed. The best floor made can be spoiled by the use of improper nails. The steel cut variety is recommended for all blind nailing.

For 13 16 in. use 8 penny steel cut flooring nail.

For 3 8 in. use 3 penny wire finishing nail.

The maximum distance between the nails should be:

For 13 16 in. thickness, 16 in.

For 3 8 in. thickness, 10 in.

For even better results, it is recommended that the nails be driven closer than indicated.

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How to Make a Long-Life Shingle Roof

The first essential is good shingles.

For rafters use sized 2x4's or 2x6's, spaced on not over 2-foot centres, spiked solid and braced as load requires.

For roof boards or sheathing use good material. SIS strips 1x4 inches or random width to not more than 8 inches, spaced not more than two inches apart, and nailed solid with 8d nails.

Preparation of shingles—If they are to be stained, use dry shingles, dipping each one in the stain not less than 8 inches from butt. Shingles that are not to be stained should be wet thoroughly before laying.

If additional fire-resistant quality is wanted, dip in good quality of mineral paint, or such other approved fire-resistant treatment as may be available.

Shingle nails—Solid copper, solid zinc, or hot-dipped zinc coated nails preferred. Where these are not available use old-fashioned cut nails.

Size of nail—For 5 to 2 inches or thinner shingles, 3d; for thicker shingles 4d.

Laying the shingles—Start at eaves and lay 6 or 7 course two-ply, giving 2 inches projection over crown-mould and 1-inch projection at gables. Throw out all defective shingles.

On one-third or more pitch lay 16-inch shingles 4 1/2 inches to the weather, on less than one-third pitch lay 18-inch shingles 4 1/2 inches to the weather. On medium or more pitch lay 18-inch shingles 4 1/2 inches to the weather; on less than one-third pitch lay 18-inch shingles 4 1/2 inches to the weather.

Use a straight-edge to make sure courses are laid straight.

Break all joints at least 1 1/2 inches, seeing that no

break joints directly over another on any three consecutive courses, thereby covering all nails.

Nail shingles 5 inches from butt (for 4½ inch lap) and ½ inch from sides, and put only two nails in each shingle. Shingles wider than 10 inches should be split.

Lay shingles so that water will run with the grain, and do not drive nail heads into shingles.

Lay wet shingles with butts close together. Leave ½ inch space between dry shingles.

Use 14 inch galvanized iron, not less than 26 gauge, or best quality old-style tin, heavily coated, for valleys; copper or galvanized iron for ridge roll.

Use galvanized or heavily coated tin flashing around chimneys. If tin is used, it should be painted two coats—one as soon as roof is completed and the second coat within two weeks. Galvanized metal should be painted two coats, but should be given thirty days for oxidation before painting. No patent dryer or turpentine should be used. Finish hips by laying a course of even width narrow shingles on both sides of hip over regular courses. American Lumberman.

Disston's New Handsaw

It is generally conceded that the most important of the tools in a carpenter's kit are his handsaws—one for crosscutting, the other for ripping. These are absolute essentials for general work, practice having determined that each must be individually constructed, so far as the teeth are concerned, for the particular class of work it is to perform.

While, as stated, this applies to general carpentry work, in these days of general work, concrete building operations, factories, bridges, etc., there is so much lumber used for forms and uprights, etc., that notwithstanding the employment of a portable circular sawing outfit, considerable handsaw work is entailed.

The work required of a handsaw on these operations is not so much for a smooth cut as for quick cutting, and may be styled "roughing out." It involves crosscutting, ripping and mitreing or cutting at an angle, which latter partakes of both crosscutting and ripping, the lumber mostly used being North Carolina pine boards one inch thick, studding, planks and joists.

Considering these facts, it will readily be seen that in the use of two saws for the work, a rip and a crosscut, considerable time is lost during the day in picking up one, then the other, again, either the rip or the crosscut saw may not be near at hand, and, further, neither of these two give the highest results in sawing at an angle.

Obviously, therefore, if a single style of saw were made with teeth specially adapted for this combination of work, one giving quick action with minimum labor, having a form of tooth easily kept in order by the average carpenter, its advantages would be readily and quickly appreciated.

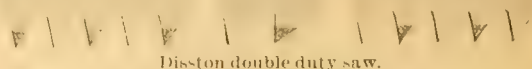
This fully explains the object and purpose of the new saw now being made and marketed by Henry Disston & Sons. It is called the Disston Double Duty saw, and the enlarged illustration of a section of the tooth-edge shows the character of the combination of teeth in this saw.

The Disston Double Duty saw is an excellent saw for general construction work of all kinds, studding up houses, shoring for sewers, making forms for concrete building, railroad work, millwright, farm use, and in fact for all general purposes.

To be perfectly sure of its adaptability for the particular work in question, sample saws were made and distributed among carpenters on concrete construction work. These practical trials and tests demonstrated beyond doubt the practical utility of this style of saw and its advantages on the classes of work mentioned, over the regular patterns, each of the carpenters using the saw highly commending it and expressing a desire to purchase one.

It will be noted that the tooth-edge consists of a special combination of rip and crosscut teeth each section separated by a deep gullet.

When the saw is used for crosscutting the rip teeth act as "cleaners," that is, clearing out the kerf. In ripping, there is double action, the crosscut teeth make a scoring cut on each side of the kerf, which enables the rip teeth to cut clean, with greater ease and rapidity, not only in ripping, but in cutting on an



Disston double duty saw.

angle or diagonally across the grain, which is its specialty.

The Disston Double Duty handsaw is made in skew-back pattern, the blade of Disston high quality crucible steel, warranted, handle of hardwood, full polished, fastened with brass screws. Made in 26 inch length.

Those who have used this saw pronounce it the best and most practical saw they ever used for the purpose.

Gen. F. O. W. Loomis Builders' Guest

Brig-Gen. F. O. W. Loomis, D.S.O., who was the guest of honor of the Montreal Builders' Exchange at a luncheon in Freeman's Hotel, on January 24, received a splendid ovation at the hands of 200 members of that organization. The General gave an interesting outline of what was being accomplished by the building contractors and other industries in the work of restoring those portions of France which had been overrun by the Germans in the early period of the war. It was marvellous, he said, with what rapidity, economy and efficiency, new centres of industrial enterprise were springing up, particularly in northern France, where the Germans had dominated the industrial sections.

In referring to the part Canadians were doing at home, in every branch of industry, in the prosecution of the war, he declared it was in no sense underestimated by the men at the front. Wherever he had visited, both on the other side and in Canada since his return, he had found the people determined to carry on, and it would be a message he would be glad to take back to Canada's fighting men, when he returned to France. He gave a warning note not to be comforted in the thought over the reports of disturbances in Austria or Germany. Every citizen of the Dominion must be prepared to work unceasingly for a continuation of the war until Germany was brought to her knees. He paid a remarkable tribute to the women of Canada for what they had done for the soldiers at the front.

News From Coast to Coast

Annual Meeting Toronto Builders' Exchange

At the annual meeting of the Toronto Builders' Exchange held at the Exchange, 152 Simcoe St., Toronto, on January 21, the following officers were elected:

President, W. E. Dillon; vice-presidents, Walter Davidson, and A. D. Grant; treasurer, John Aldridge. The directors are the above, S. R. Hughes, past-president, and George Oakley, Jr., Chas. Bulley, Wm. Clark, Jr., E. Gearing, James Munro, and George Gauder. The auditors are Arthur N. Dancy and John Barnes. The secretary is D. J. Davidge.

The late secretary, Geo. McSweeney has joined the R. N. E. Corps, and was presented with a steamer trunk, club bag and purse of money. The members extended to him their good wishes, and expressed a hope for his safe return.

The membership committee, comprising James Munro, C. T. Penn, W. J. Nicholson, R. Falkiner, A. D. Grant, H. Feather, J. Scott, and H. Jennings, are making plans to carry on a membership campaign.

The Goodyear Tire & Rubber Co., owing to the expansion of their business have requested the flat in the building occupied by the Exchange, and it is therefore necessary for the Exchange to move. A committee appointed to report on new offices reported recommending the third story of the Lands Securities Building at the southwest corner of Adelaide and Victoria Sts. The Exchange is now located in this building. It is centrally located and is very convenient to the majority of the members. Entrance is at 34 Victoria St. The new telephone number is Main 5274.

Committees are working to settle wage demands for different unions. Discussions also took place on the Workmen's Compensation Act and the Ontario Labor Law.

Officers of London Builders' Exchange

At the annual meeting of the London Builders' Exchange, officers for 1918 were elected as follows: President, Harry Hayman; first vice-president, L. A. Ross; second vice-president, Ed. Gerry; treasurer, Thos. A. Jones. Board of directors, Messrs. A. C. Nobbs, E. R. Dennis, Thos. Peier, Ben Noble, T. R. Wright; auditors, Messrs. Peier and James Whitaker.

Messrs. Moran, Nobbs, Hayman, Noble and Gould were chosen as delegates to the provincial convention to be held in Galt in June.

Montreal Builders' Exchange Annual Meeting

At the annual meeting of the Montreal Builders' Exchange, the following officers were elected for the ensuing year:

President, Mr. J. P. Anglin (re-elected).

First vice-president, Mr. R. F. Dykes, T. A. Morrison & Co.

Second vice-president, Mr. W. M. Irving, general contractor.

Past president, Mr. John Quinlan, general contractor.

Directors, Messrs. A. Charrette, master plumber; H. Fussing, general contractor; Fred B. Locker, president of Montreal Mantel and Tile Dealers' Association; W. E. Ramsay, builders' supplies; J. J. Roberts, carpentry and mill work; A. Rutherford, lumber; Walter Ryan, master plumber; Charles F. Smallpiece, hardware; H. Vincent, electrical contractor; J. E. Walsh, sanitary and heating engineer; A. H. Webster, builders' supplies.

The secretary treasurer is David Trotter.

In reviewing the past year's work, Mr. Anglin said:

"Now coming to the war time operations of the members of our Builders' Exchange. I must first thank the members for their loyal support during 1917 and especially the directors, who have been most faithful in their attendance at meetings, and by their help have made the Exchange a success.

"I Believe We Have Reached the Minimum"

"Our real business for 1917 reached about a minimum, at least we hope so. As in previous years, our members' chief building operations were outside of Montreal. Speaking generally, I believe that Montreal contractors have obtained their fair share of Canada's building work. I think it would be very interesting if figures could be compiled showing the total year's turnover of all of our contractor members for the past six years. You will, no doubt, be anxious to hear the real figures of the slump in building operations in the Dominion, and also in Montreal during this term.

The published Government records for building permits in thirty five cities are as follows:

Year	City	Metric	
		Metric tons	Per cent
1912		\$185,000,000	24
1913		156,000,000	20
1914		97,000,000	22
1915		11,000,000	26
1916		10,000,000	15
1917		5,000,000	17

These figures probably represent one-tenth of the buildings done by contractors but of course do not cover dams, piers, bridges and roads constructed by building contractors.

"I wish I could predict with even reasonable accuracy what 1918 has in store for us all, but I will leave you to draw your own conclusions by simply stating that I believe we have reached the minimum. There are as many opinions for business as usual as in the early season, but unless costs reduce much of the building will be let over. Structures, steel is at nearly twice the cost, both supply and price, and other materials will follow, but we cannot look for much reduction in this line. We should constantly remind prospective clients that no real reduction is likely for some time.

"I am convinced that we builders and supply firms should study the tendency to standardize building construction. It is made necessary in order to reduce

Delivered	Per bush.
1 O.B. yard and F.O.B. cars, city ..	2.30
Crushed stone, crushed and screened gravel, 1½ in. to 2 in.—	1.80
Delivered	2.60
F.O.B. yard and F.O.B. cars, city ..	2.30
Crushed stone, crushed and screened gravel, 3 4 in. to 1 in.—	2.30
Delivered	2.85
1 O.B. yard and F.O.B. cars, city	2.50
Stone dust—	
Delivered	2.55
1 O.B. yard and F.O.B. cars, city ..	2.25
Roaming gravel—	
Delivered in city or F.O.B. cars	3.00
Note: All material quoted above is delivered in 2 yd. loads; for delivery of less than 2 yd. loads add 50c net extra per load.	
Rubble stone—	Per cord
Delivered	\$14.20
1 O.B. yard and F.O.B. cars, city ..	12.95
Same in bulk—White lime, grey lime, Mossborn and Bowman lime -	
Same in bags 2c per bush. over bulk price.	
	Per bush.
Delivered	\$.45
1 O.B. yard	.42
1 O.B. cars at kiln	.31
Note: All above delivered prices are for material containing 40 bushels or more; for less than 40 bushels delivered add 50c net per load.	
Same is sold by measure only.	
Same in barrels (including barrels)—	
Diamond and Star Brands.	
	Per bbl.
Delivered	2.75
1 O.B. yard	2.60
Mossborn and Bowman Brands—	
Delivered	2.40
1 O.B. yard	2.30

Kelly Island Brand—	
Delivered	2.35
F.O.B. yard	2.25
Above delivered prices are based on load lots.	
Note—A barrel of lime weighs 200 lbs. gross, or about 180 lbs. of lime.	
Hydrated lime in paper bags (50 lbs.)—	
Bags included in price, but not returnable.	
Per ton	
Delivered	\$18.50
F.O.B. yard	17.40
F.O.B. cars, city	16.35
Hydrated lime in cotton bags—(100 lbs.),	
bags included in price.	
Per ton	
Delivered	\$26.00
F.O.B. yard	24.50
F.O.B. cars, city	23.00
Sacks returnable 30c each.	
Portland cement in bags—	
Per bbl.	
Delivered	\$4.40
F.O.B. yard	4.30
F.O.B. cars, city	4.20
Carloads on track direct on job, \$3.80 per barrel.	
Note—Four sacks make a barrel, 350 lbs.	
Mortar cement in bags—	
Per bag	
Delivered	\$.64
F.O.B. yard	.62
F.O.B. cars, city	.54
Note—1 sack mortar cement weighs 70 lbs.	
Delivered in ton lots; less than ton lots 50c extra.	
Best Bros. Acme and No. 1 Keenes	
cement in bags—	
Per bag	
Delivered	\$2.50
F.O.B. yard or cars, city	2.25
Empire Keenes cement in 100 lb. bags—	
Delivered	\$2.25
F.O.B. yard or cars, city	2.10
Note—a sack contains 100 lbs. gross.	
Fine Keenes cement in bags—	
(3 sacks per bbl.)	
Per bbl.	
Delivered	\$13.10
F.O.B. yard or cars, city	12.25
Superfine Keenes cement in bags—	
(3 sacks per bbl.)	
Per bbl.	
Delivered	15.50
F.O.B. yard or cars, city	14.70
Gypsum—	
Per ton	
Delivered	\$16.00
F.O.B. yard	15.00
F.O.B. cars, city	14.25
Hardwall plaster Nos. 1 and 2, wood	
fibre plaster, ivory finish, gold dust	
finish—	
Per ton	
Delivered	20.25
F.O.B. yard	19.25

F.O.B. cars, city	18.50
Empire finish plaster, Peerless prepared	
finish, Sinite finish plaster (in	
bags)—	
Delivered	24.00
F.O.B. yard	23.00
F.O.B. cars, city	22.25
Plaster of paris and Stucco (in bags)—	
Delivered	\$23.00
F.O.B. yard	22.00
F.O.B. cars, city	22.75
Carloads on track, direct on job	
Note—20 sacks make 1 ton gross.	
Delivered in ton lots; less than ton lots 50c extra.	
Plaster of paris in barrels—	
(Price includes barrels.)	
Per bbl.	
Hammer Brand, 320 lbs. gross	\$4.40
Empire and Peerless, 250 lbs. gross	3.70
Plasterers' hair—	
Per bale	\$3.30
Per bush	.90
Mortar color—	
Per 100 lb.	
Red	\$5.00
Black	5.30
Buff	5.50
Chocolate	6.50
Drain tile—	
3 in. delivered or at yard, each	\$.06
4 in. delivered or at yard, each	.08
Each tile is one foot long.	
Wood lath—	
No. 1, delivered, per M.	\$6.00
No. 2, delivered, per M.	5.25
Gypso fibre—	
Per M. ft.	
1/4 in. x 32 x 36—	
Delivered	\$32.25
F.O.B. yard	27.20
F.O.B. cars, city	26.15
5/16 in. x 32 x 36 x 48 and 60—	
Delivered	33.00
F.O.B. yard	28.60
F.O.B. cars, city	27.25
3/8 in. x 32 x 36 and 48 and 60—	
Delivered	36.30
F.O.B. yard	32.70
F.O.B. cars, city	30.80
1/2 in. x 32 x 36 and 48 and 60—	
Delivered	41.50
F.O.B. yard	37.00
F.O.B. cars, city	35.00
Note—If delivered in more than 2,000 feet	
lots, \$2.00 per M. less.	
Plaster blocks—	
Per 100 sq. ft.	
3 in. hollow tile—	
Delivered or F.O.B. yard	\$10.50
F.O.B. cars, city	8.50
4 in. hollow tile—	
Delivered or F.O.B. yard	11.50
F.O.B. cars, city	9.50

6 in. hollow tile—	
Prices on application—	
2 in. furring tile—	
Delivered or F.O.B. yard	8.50
F.O.B. cars, city	6.50
2 in. solid tile—	
Delivered, or F.O.B. yard	10.50
F.O.B. cars, city	8.50
Terra Cotta tile prices on application.	
Fire clay—	
Delivered or F.O.B. yard, per 100 lbs.	1.25
Per ton	25.00
Fireclay (Canada)—	
Delivered, per M.	\$70.00
F. O. B. yard	67.50
F. O. B. cars	65.00
In quantities less than 1M, 7 1/2 c each.	
Fire brick—(American)	
Per M.	
Delivered	\$90.00
F.O.B. yard	87.50
F.O.B. cars, city	82.50
Less than M. delivered, per 100	9.50
Special prices on fire blocks and specials on application.	
Common clay brick	15.00
Chimney and select brick	16.50
Veneer brick	18.00
Sandlime brick	14.50

PRICES AT VANCOUVER

Shingles, lath, etc.—	
XXX B. C. cedar shingles, per	
M.	\$ 3.25
No. 1 pine lath, per M.	
	2.35 to 2.65
Brick, tile, terra cotta,	
sewer pipe—	
No. 1 dry pressed red bricks,	30.00 to 45.00
per M.	
No. 1 dry pressed buff bricks,	40.00 to 45.00
per M.	
Red stock bricks	14.50 to 16.00
Fire brick	45.00
Fireclay, per ton (car lots)	12.50
Sewer pipe, 4 inch, per ft.	13 1/2
6 in., per ft.	.23
8 in., per ft.	.35
10 in., per ft.	.45
12 in., per ft.	.55
Cement plaster, stone, etc.—	
Cement, Portland (bags extra),	
per bbl.	\$ 2.65
Keenes cement, per bbl. (sacks extra)	9.00
Lime, per bbl.	1.75
Hydrated lime, per ton	16.00
Alca lime, per ton	16.00
Plaster of paris, per bbl.	4.50
Hardwall plaster, per ton (car lots,	
bags extra)	
	16.50

the cost, because by adopting proper designs, much material could be saved, and, therefore, time as well.

"The one abnormal event of 1917, which staggered Canada and which will probably increase our building operations, is the awful destruction of buildings and lives due to the explosion at Halifax. Your directors have had frequent meetings to discuss this matter; and a committee was appointed consisting of the president, and Messrs. Irving and Dykes to follow up events and see what opportunity there was for our Montreal members in future Halifax buildings.

Matters Dealt With by the Exchange in 1917

"For the information of those members not in close touch with our Exchange work, I will recite a few of the many matters considered or dealt with during 1917.

"We sent a memorial to the Government at Ottawa, jointly with the Architects' Association and the Canadian Society of Civil Engineers, protesting against the employment of contractors, architects, and engineers from across the line on important government works, and thereby influencing large private corporations to do the same. We believe this had the desired effect.

"An important move in the right direction was the formation of the General Contractors' Section of the Exchange, to deal with all matters pertaining to masonry, concrete and brick contractors. This movement needs to be extended to all trades.

"We have continued to agitate from time to time for direct representation on the Provincial Technical

School Board and hope, by keeping at it, to gain this privilege. We believe a closer relation between ourselves, apprentices and the Technical School would benefit both the boys and the school, and if this were realized we would be assured of a supply of efficient mechanics for the future.

"When called upon, we studied the schemes for the better government of our city, and in due course brought forth a sound program, the adoption of which, we believe, would be in the best interests of Montreal. The result is yet unknown, but we can depend upon Sir Lomer, our Premier, doing the right thing by the city.

"What general gatherings we have held during the past have been well attended and the members have shown a keen interest in their Exchange. The fraternal feeling is growing between our members, and every opportunity should be taken to promote this acquaintanceship, as in so doing we will strengthen both our business and our Exchange.

"I want to mention the names of General Loomis and Major Cape, who gave up so much in order to serve their country. I am sure you will join me in the hope that they will both return to their families in safety and good health before another year has passed. We should also remember the many brothers, sons and employees of our members who have gone to save the Empire in France. Many have been wounded and some have made the great sacrifice. Let us never forget to be grateful for what they have done. It should spur us on to greater personal effort and make us ever more proud of our calling and our country."

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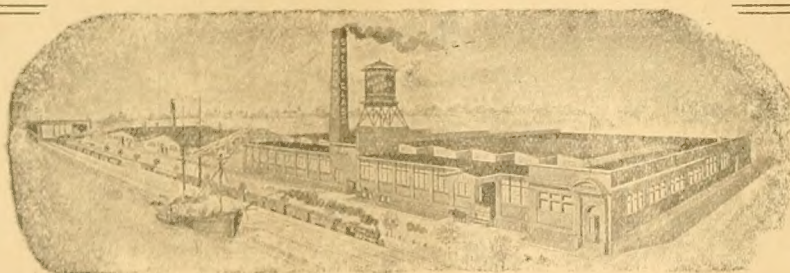
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THE TORONTO PLATE GLASS IMPORTING COMPANY, LIMITED

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They are as durable as the high-grade steel that composes them, and will render faithful service for generations. The comfortable handle and various lengths of blades make them suitable for all classes of work.

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Residence of Mr. W. A. Rankin, Fentiman Ave., Ottawa—built mid snow, ice, and winter cold.

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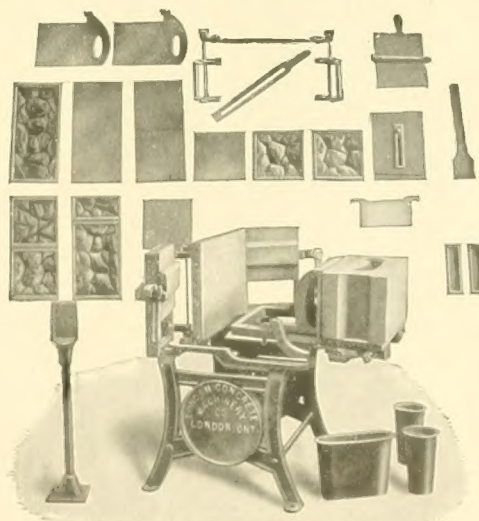
Bishopric Stucco Board enables builders and contractors to get all the rough carpentry work done right through the winter and early spring, when most carpenters are idle.

Take advantage of this—start building at once—put down Bishopric Stucco Board as a foundation for outside stucco walls, or, with lath side to the studding, leaving the fibre board exposed, for interior decoration, presenting a well-sized, clean surface, either as it stands or for decorative purposes.

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The reason why Barrett Specification Roofs are almost without a competitor for use on permanent buildings is because they cost less per year of service than any other kind.

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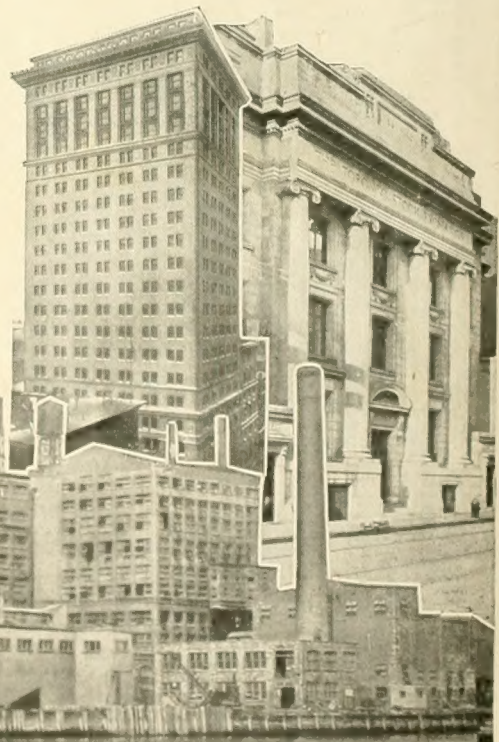
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VANCOUVER
SYDNEY, N. S.



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Further information and copies of The Barrett 20-Year Specification, with roofing diagrams, free on request.



The buildings illustrated are the Toronto Stock Exchange, Royal Bank Building, Toronto, Atlantic Sugar Refining Co. St. John, N. B., all covered with Barrett Specification Roofs

